Understanding Lysosomes Using HOL based on R-D Mechanisms & CA Formalisms.

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[I] Introduction & Inspiration :

Lysosomes should not be confused with liposomes, or with micelles.

“Lysosomes play a dynamic role in cells and are altered in cancer. The initiation of LMP in cancer cells is a novel mechanism to engage the different cell death mechanisms selective for cancer.Targeting lysosomes provides hope that effective treatment against drug-resistant cancers could be developed. “

“Lysosomes are membrane-enclosed organelles that contain an array of enzymes capable of breaking down all types of biological polymers—proteins, nucleic acids, carbohydrates, and lipids. “ - Hence, Lysosomes give us an opportunity to explore the underlying theory and applications using HOL based on R-D Mechanisms/Cellular Automata Concepts.

https://www.dovepress.com/role-of-lysosomes-in-cancer-therapy-peer-reviewed-fulltext-article-RRB#

https://academic.oup.com/jmcb/article-abstract/5/4/214/900529 by guest on 16 February 2019

https://www.quora.com/Can-lysosomes-be-used-in-treating-cancer-cells

Handbook Of Nanobiomedical Research: Fundamentals, Applications And Recent ...Edited by Torchilin Vladimir P .

https://www.biorxiv.org/content/biorxiv/early/2018/10/01/432252.full.pdf

http://www.jlr.org/content/57/2/193.full

https://www.tandfonline.com/doi/pdf/10.4161/cbt.7.12.7067

https://en.wikipedia.org/wiki/Reactive_oxygen_species

https://www.ncbi.nlm.nih.gov/books/NBK9953/

https://en.wikipedia.org/wiki/Lysosome

[II] HOL Informatics Framework – Block Diagram :

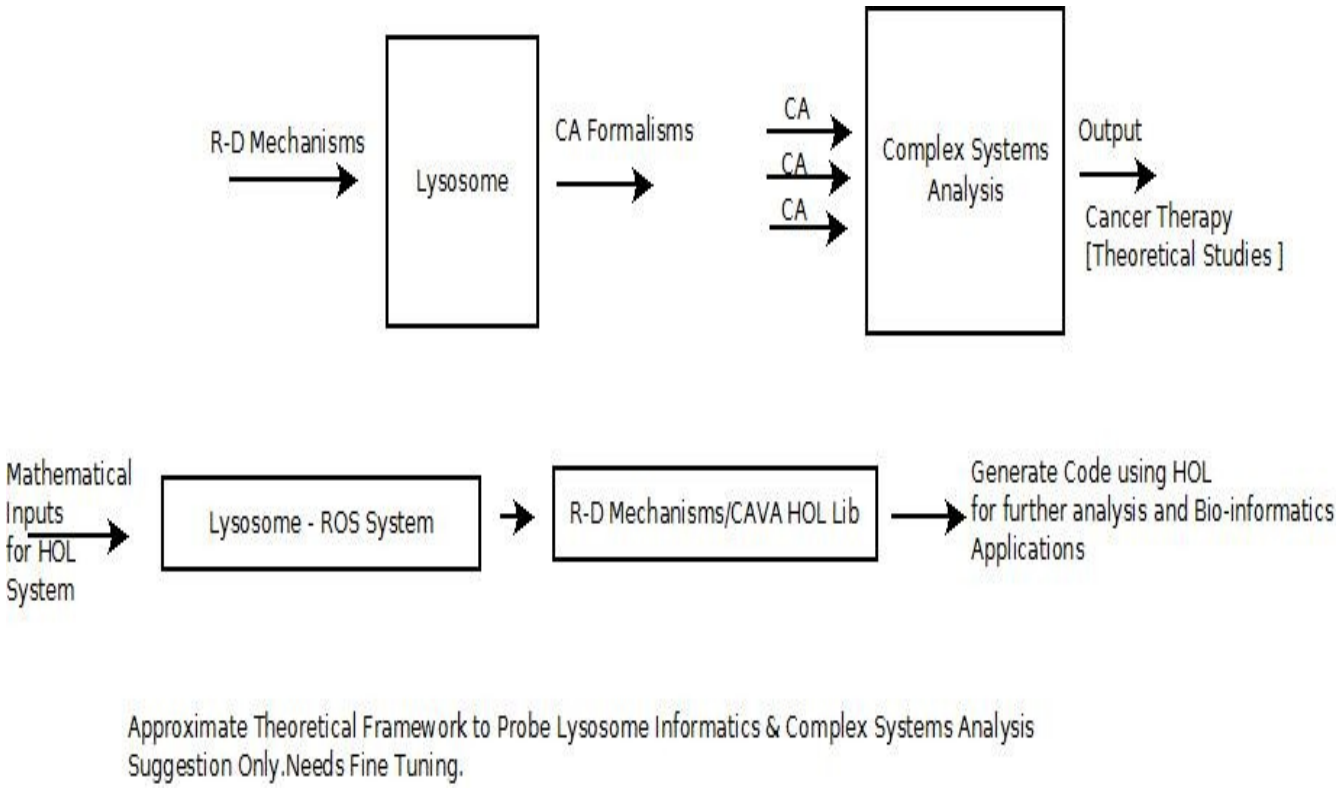

Figure I – Lysosomes Informatics Framework – Using HOL/CAVA Library.

"Deeply rooted in fundamental research in Mathematics and Computer Science, Cellular Automata (CA) are recognized as an intuitive modeling paradigm for Complex Systems. **B**eyond the original realm of applications - Physics, Computer Science, and Mathematics – CA have also become work horses in very different disciplines such as epidemiology and immunology."

https://www.nature.com/subjects/lysosomes

http://guava.physics.uiuc.edu/~nigel/courses/569/Essays_Fall2012/Files/merritt.pdf

https://www.springer.com/in/book/9783642122026

R-D - Reaction Diffusion Mechanisms / CA - CellularAutomata

Please Note : Readers are requested to satisfy themselves and fine tune the application presented.

[III] Information on Mathematics & Software Used :

https://isabelle.in.tum.de/

https://www.isa-afp.org/entries/CAVA_Automata.html

https://www.cl.cam.ac.uk/research/hvg/Isabelle/dist/library/HOL/HOL/document.pdf

https://arxiv.org/ftp/arxiv/papers/1702/1702.05259.pdf

http://concrete-semantics.org/

http://science.sciencemag.org/content/329/5999/1616

http://www21.in.tum.de/~lammich/

[IV] Acknowledgment/s :

Thanks to all. Non-Profit Academic R&D Only.

THE END